October 17, 2012

EX PARTE PRESENTATION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte Presentation in WT Docket No. 12-70, *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*; ET Docket No. 10-142, *Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*; and WT Docket No. 04-356, *Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands*

Dear Ms. Dortch:

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, DISH Network Corporation ("DISH") submits this letter summarizing three meetings on Monday, October 15, 2012:

- A meeting with David Goldman, Senior Legal Advisor for Commissioner Rosenworcel.
- A meeting with Courtney Reinhard, Legal Advisor, Wireless for Commissioner Pai.
- A meeting with Ruth Milkman, Chief, Wireless Telecommunications Bureau; John Leibovitz, Deputy Chief, Wireless Telecommunications Bureau; Julius Knapp, Chief, Office of Engineering and Technology; Tom Peters, Chief Engineer, Wireless Telecommunications Bureau; Blaise Scinto, Chief, Broadband Division, Wireless Telecommunications Bureau; Jeremy Marcus, Assistant Chief, Broadband Division, Wireless Telecommunications Bureau; and Janet Young, Engineer, Broadband Division, Wireless Telecommunications Bureau.

Present on behalf of DISH were Jeffrey Blum, Senior Vice President and Deputy General Counsel; Mariam Sorond, Vice President, Technology Development (by telephone); David Zufall, Vice President, Wireless Development; Alison Minea, Corporate Counsel; Hadass Kogan, Associate Corporate Counsel; and John Flynn, outside counsel.[1]

[1] Ms. Sorond did not attend the meetings with Ms. Reinhard or Mr. Goldman. Mr. Flynn did not attend the meeting with Ms. Reinhard.

During the meetings, DISH urged the Commission to complete the above-referenced rulemaking as expeditiously as possible, and maintain the existing band plan, consistent with the *AWS-4 NPRM*.[2] The Commission has repeatedly sought "to create a solid and lasting foundation for the provision of terrestrial services in 40 megahertz of spectrum in the 2 GHz band."[3] Codifying the AWS-4 rules as proposed in the *AWS-4 NPRM* will allow the Commission to accomplish this goal, while enabling DISH's entry as a disruptive competitor in the wireless market. Imposing unnecessary technical limits on DISH's operations in this proceeding in an effort to prematurely define future services in the H Block, on the other hand, would threaten DISH's ability to enter the wireless market with no offsetting benefits to the public interest or mobile broadband competition. Instead, the optimal path forward should be to preserve all 40 MHz of AWS-4 spectrum for mobile broadband usage *and* all 10 MHz of the H Block for mobile broadband usage.

I. Imposing Strict Emissions Limits on DISH Carries Substantial Costs Without Offsetting Benefits.

DISH explained that the out-of-band emission ("OOBE") limits proposed in the *AWS-4 NPRM* are more than sufficient to protect other wireless operators, and that the Commission should reject the self-serving efforts of one party to impose substantial limits on AWS-4 operations. Specifically, Sprint has suggested imposing stringent emission limits for AWS-4 services of -40 dBm/MHz at 2000 MHz.[4] Such a limit is unjustified as a technical matter, and would jeopardize new mobile broadband service in the AWS-4 band for the purported reason of potentially permitting higher power H Block uses in the future.[5] But, as DISH, Sprint, and AT&T all agree, many technical and legal issues with the H Block remain to be resolved before service rules can be promulgated and an auction planned.[6] As a result, prematurely setting

---

[2] Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands, WT Docket No. 12-70, Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz, ET Docket No. 10-142, Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands, WT Docket No. 04-356, *Notice of Proposed Rulemaking and Notice of Inquiry*, FCC 12-32 (rel. Mar. 21, 2012) ("*AWS-4 NPRM*").

[3] *Id*. ¶ 2; *see also* Federal Communications Commission, Connecting America: The National Broadband Plan at 87 (2010) ("National Broadband Plan").

[4] *See* Letter from Stephen Bye and Lawrence Krevor, Sprint Nextel Corporation, to Chairman Genachowski, FCC, WT Dkt. Nos. 12-70, 04-356, ET Dkt. No. 10-142 (Oct. 2, 2012) ("[T]he Commission should establish reasonable service rules that provide H Block operations with the same level of protection from 2 GHz S Band interference as the PCS G Block").

[5] *See* Letter from Lawrence Krevor, Sprint Nextel Corporation, to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-70 and 04-356 and ET Dkt. No. 10-142 (Sept. 17, 2012) ("Sprint added that it values the H Block as LTE expansion spectrum").

[6] *See* Letter from Jeffrey H. Blum, DISH Network Corporation, to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-70 and 04-356 and ET Dkt. No. 10-142, at 5 (Oct. 10, 2012). *See also* Comments of Sprint Nextel Corporation, ET Dkt. No. 10-142, WT Dkt Nos. 04-356 and 07-195, at 4 (July 8, 2011)

emission levels in this proceeding is contrary to the public interest because it would impose many costs without offsetting benefits. These costs include among other things:

- **At least 25 percent of DISH's uplink rendered unusable.** A new emissions limit of 70+10*log(P) dB (i.e., -40 dBm/MHz) at the 2000 MHz edge of the AWS-4 band along with full power LTE deployment in the H Block would cause DISH to lose at least 25 percent of its uplink spectrum (in this case 2000 – 2005 MHz) and would be contrary to the Commission's goals and the public interest by effectively consigning at least 5 MHz of usable broadband spectrum to guard band status. The in-band power of the H Block base station will cause an overload of the AWS-4 base station receivers, which can only be mitigated through 5 MHz of frequency separation and the use of filters on the AWS-4 base stations.

- **Delays and risks caused by re-opening the 3GPP standard.** Any deviation from the existing band plan would introduce substantial delay and risk into the 3rd Generation Partnership Project ("3GPP") standard-setting process for the AWS-4 band. The 3GPP process of standardizing Band 23 (*i.e.*, 2000-2020 MHz and 2180- 2200 MHz) began in December 2009, and the standard was approved in June 2011 after extensive efforts between 3GPP vendors and operators to reach an agreement for coexistence requirements with adjacent bands. Changing the established emissions limit at this juncture could hamper DISH's ability to enter the market at a time when industry consolidation increasingly threatens the ability of new entrants to compete.

- **Increased deployment costs for AWS-4.** In addition to losing 5 MHz of its uplink spectrum, DISH's network deployment for the remaining uplink at 2005 MHz will be substantially more costly if H Block is used for full power LTE. In particular, the AWS-4 base station receive channel above 2005 MHz will have reduced coverage caused by the OOBE transmitted by the adjacent H Block base station, as explained below.

  The current OOBE limits from G Block and PCS are specified by 3GPP at a level of -30 dBm/MHz to protect the AWS-4 base station receivers at 2000 to 2010 MHz. Such an OOBE limit is 19 dB lower than what is generally required for protection by 3GPP. A level of -30dBm/MHz likely could reduce the coverage area of a standard LTE base station up to 80%, which in turn requires five times more sites when additional site engineering and deployment options are not available to mitigate this interference. Through co-location with G Block base stations, DISH could reduce this impact; however it will require additional sites to overcome the coverage loss when there are no co-location options, or when sites are placed on rooftops where achieving vertical

---

(explaining that "H Block uplink operations at 1915-1920 MHz would pose a serious interference threat to G Block transmissions and other PCS operations"); Letter from Joan Marsh, Vice President – Federal Regulatory, AT&T, Inc. to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-70 and 04-356 and ET Dkt. No. 10-142, at 3 (Oct. 5, 2012) (noting that "[b]ecause of the serious interference concerns and the significant operational challenges involved, the H Block should not be used for commercial mobile service").

separation is not possible. Therefore, DISH already faces a costly deployment for the AWS-4 spectrum in order to protect G Block operations.[7]

Full-power H Block will even further increase this deployment cost, given that the H Block network may be years away from being constructed and DISH cannot know today where the H Block licensee will place base stations with respect to existing AWS-4 operational base stations. To approximate the impact of the additional AWS-4 sites that will be affected, a ratio of rooftops to towers could be used to give some indication of the likelihood that the H Block sites will be co-located with existing AWS-4 sites. This ratio is approximately 15 percent. Assuming the best case of full co-location, which is highly unlikely, approximately 15 percent of the sites will suffer degraded service, requiring the addition of one to two AWS-4 sites per instance of interference even if the OOBE of H Block is further reduced to -40dBm/MHz. The net impact from full-power H Block emissions becomes an incremental increase of 15-30 percent of the overall AWS-4 site build.

- **No net gain of spectrum for broadband.** Even if a more stringent emissions limit for AWS-4 could be seen as creating 5 MHz of new spectrum for broadband use in the H Block (a premise DISH rejects given that H Block can be used for broadband based on today's technical rules), the net gain of spectrum would be *zero*. DISH's uplink would be shrunk by at least 5 MHz as explained above. The Commission would sacrifice 5 MHz to gain 5 MHz, and additionally increase the cost of deployment on the uplink spectrum at 2005 MHz. In so doing, it would inflict harm on a new wireless entrant who already faces substantial challenges.

Moreover, as previously stated, the record in this proceeding and the AWS-2 H Block rulemaking establish that there are a number of serious challenges to full-power LTE operations in the H Block separate and apart from AWS-4. Indeed, Congress recognized some of those challenges in designating the H Block for auction in the Middle Class Tax Relief and Job Creation Act of 2012 ("Spectrum Act").[8] The Spectrum Act directs the Commission to auction the H Block by December 2015 *as long as use of the band would not interfere with PCS operations*.[9] This important engineering analysis has not been completed. The record in the AWS-2 H Block rulemaking, in fact, reflects concerns regarding interference between the lower H Block (at 1915-1920 MHz) and the PCS band,[10] and these interference issues could preclude licensing under the Spectrum Act.[11]

---

[7] Additionally, DISH's current OOBE limits on its mobiles to protect G block (70+10*log(P) dB below 1995 MHz) impair 5 MHz of its uplink because of these already stringent emission levels.

[8] *See* Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6401(b) (2012).

[9] *Id.*

[10] *See* AWS 4 NPRM ¶ 147 (2012).

[11] *See* Spectrum Act, § 6401(b) (directing the Commission, within three years of enactment, to allocate, auction, and license each of the lower and upper H Blocks for commercial use under flexible-use service rules, unless it determines that the respective spectrum blocks "cannot be used without causing harmful

In sum, Sprint's proposal of imposing limits on AWS-4 operations would cause all the above public interest harms on the very optimistic gamble that all other legal and technical impediments to high-power LTE operations in the H Block can be resolved in Sprint's favor. DISH submits that such a course would be hasty, short-sighted, and contrary to the public interest.

II. A Solution To H Block Can Be Achieved Without Jeopardizing the Goals of AWS-4.

Rather than impose unnecessary emissions limits on AWS-4 operations now, DISH explained that the Commission can reach a win-win result that offers a path to use H Block for broadband, attracts bidders to a future H Block auction, and reduces harmful interference into AWS-4. DISH supports making the H Block viable for auction, but this goal can be accomplished without jeopardizing the ability to deploy mobile broadband services in the AWS-4 band. Chairman Genachowski recently cautioned against "leav[ing] valuable spectrum on the table."[12] DISH agrees that—just as AWS-4 should be used for mobile broadband—the Commission should design a suitable use for the 10 MHz of H Block spectrum. The Commission can avoid altogether the potential zero sum game underlying Sprint's proposal of trading 5 MHz of AWS-4 spectrum for 5 MHz of H Block spectrum (assuming all the other legal and technical challenges facing H Block can even be addressed).

Specifically, among other things, the H Block could be used for small cell LTE services. Chairman Genachowski has been an advocate for small cell technology. He recently explained that "small cells may be the key to bridging the [spectrum] supply/demand gap in a sustainable way."[13] DISH agrees that the "small cell revolution will drive enormous change in wireless in coming years."[14] Small-cell broadband LTE systems use low-cost, low-power base stations that

---

interference to [PCS operations in the 1930-1995 MHz band]"). Moreover, the Commission has paired the lower H Block with the upper H Block (at 1995-2000 MHz), and has proposed service rules that would license the entire H Block as "two paired channels of 5 megahertz each." *See Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz*, Sixth Report and Order, Third Memorandum Opinion and Order, and Fifth Memorandum Opinion and Order, 19 FCC Rcd 20720, ¶ 41 (2004); *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, Further Notice of Proposed Rulemaking, 23 FCC Rcd 9859, ¶ 4, App. A (2008) ("*2008 Notice*"). Thus, the Commission may be precluded from licensing the upper H Block jointly with the lower H Block as required by the Act, absent finding alternative uses of the spectrum. The Commission's two notices of proposed rulemaking on service rules for the H Block did not seek comment on possibly auctioning either segment of the H Block separately from the other. *See Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands*, Notice of Proposed Rulemaking, 19 FCC Rcd 19263 (2004) ("*AWS-2 NPRM*"); *2008 Notice.* Any actions that strand the lower H Block could also limit the commercial value of the now paired H Block spectrum. *See AWS-4 NPRM* ¶ 36 n.82.

[12] Prepared Remarks of Chairman Julius Genachowski to the University of Pennsylvania (Oct. 4, 2012).

[13] Prepared Remarks of Chairman Julius Genachowski to the International CTIA Wireless 2012, New Orleans (May 8, 2012) ("CTIA Remarks").

[14] *Id.*

can be readily deployed by new or existing operators to support stand-alone operations or to add capacity and improve performance of their networks. By operating at lower power levels and employing advanced techniques, small-cell broadband LTE systems in the H Block would avoid harmful interference to adjacent users as required by the Spectrum Act, while also substantially increasing overall network capacity for mobile broadband usage. Consequently, DISH believes that an auction of H Block for small cell deployment will increase the chances of a successful auction and encourage broader auction participation, including by DISH.

The benefits of small cell technology are particularly important as operators struggle to keep up with skyrocketing data demands on their networks. According to an in-depth survey of 65 mobile operators throughout the world, small-cell networks "are considered to be the most significant aspect of meeting the mobile data challenge."[15] Moreover, "the adoption of small, low cost, low power base stations is named the 'killer weapon' by 52 percent of operators with plans to deploy LTE and/or HSPA+ in the next 2-3 years."[16] Small-cell networks could reduce the cost of delivering data by 46 percent, compared with costs associated with current network topologies.[17]

DISH urges the Commission to undertake a further study of this possible use for H Block, which could unleash an additional 5 MHz of spectrum for broadband, and maximize DISH's chances to make its own foray into the wireless marketplace using AWS-4 spectrum.

* * * * * *

A broad cross-section of parties have repeatedly called for prompt Commission action in the AWS-4 proceeding and cautioned the Commission against adopting proposals that will alter the existing band plan or dramatically change the technical rules.[18] Given increasing wireless

---

[15] *See* Caroline Gabriel, *Telecom Operator Strategies for Profitable Small Cell Networks*, Telecom Lead, (Sept. 28, 2012), *available at* http://telecomlead.com/contributed/telecom-operator-strategies-for-profitable-small-cell-networks/ ("*Telecom Operator Strategies for Profitable Small Cell Networks*"); Maravedis-Rethink, *Small Cells Will Unlock the Value of Underused Spectrum: Carriers Look for Fivefold Capacity Increase Without New Airwaves* (Sept. 2012), *available at* http://archive.constantcontact.com/fs096/1103610692385/archive/1111033023790.html.

[16] *See Telecom Operator Strategies for Profitable Small Cell Networks.*

[17] *Id.*

[18] *See* Letter from Michael Calabrese, New America Foundation, to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-70, 04-356, ET Dkt. No. 10-142, at 3 (Aug. 27, 2012); Letter from Catherine R. Sloan, CCIA, to Marlene H. Dortch, Secretary, FCC, WT Dkt. Nos. 12-70, 04-356, ET Dkt. No. 10-142, at 1 (Sept. 9, 2012); Comments of Alcatel-Lucent, WT Docket Nos. 12-70 and 04-356; ET Docket No. 10-142, at 9 (May 17, 2012); T. Randolph Beard, PhD *et al.*, Phoenix Center for Advanced Legal & Economic Public Policy Studies ("Phoenix Center"), *Taxation by Condition: Spectrum Repurposing at the FCC and the Prolonging of Spectrum Exhaust*, Phoenix Center Policy Paper No. 44, at 12 (Sept. 2012), http://www.phoenix-center.org/pcpp/PCPP44Final.pdf.

industry consolidation, DISH needs more spectrum, not less, in order to have a chance to be successful. The Commission has long stated its desire to bring more spectrum to market, promote spectral efficiency, and encourage competition. Maintaining the existing AWS-4 band plan and proposed technical rules will allow the Commission to accomplish all of these goals.

In short, DISH urges the Commission to move expeditiously to adopt final AWS-4 rules based on the existing band plan and interference protections consistent with existing 2 GHz requirements and 3GPP standards.

Respectfully submitted,

/s/ Jeffrey H Blum
Jeffrey H. Blum

cc: Ruth Milkman
John Leibovitz
Julius Knapp
Tom Peters
Blaise Scinto
Jeremy Marcus
Janet Young
David Goldman
Courtney Reinhard